

Serial No.: 08/629,547
Art Unit: 3502

IN THE DRAWINGS:

Please amend the drawings, as shown in the attached Letter to the Official Draftsperson, by adding reference numerals 5j, 5k, 10, 5h, 11, 2f, and 4f to Fig. 1, by adding reference numerals P-P, 5j, 5k, 11, 10, 15, and C-C to Fig. 3, and by adding new Fig. 5, which shows an enlarged view of a central portion of the flywheel assembly shown in Fig. 3.

IN THE SPECIFICATION:

Please amend the specification of the reissue application as follows (a Substitute Specification is being filed herewith which incorporates each of these changes in reissue format for the Examiner's convenience):

Page 1, column 1, lines 10, 12-13, 15, 24, 27, and 34, change "crankshaft assembly" (all occurrences) to --flywheel [crankshaft] assembly--.

Page 2, column 2, lines 11, 15, 17, 27, 34-35, and 60, change "crankshaft assembly" (all occurrences) to --flywheel [crankshaft] assembly--.

Page 3, column 3, lines 4, 28, and 36, change

Serial No.: 08/629,547
Art Unit: 3502

"crankshaft assembly" (all occurrences) to --flywheel
[crankshaft] assembly--;

line 37, change "fop" to --for [fop]--.

line 43, please add --Fig. 5 is an enlarged view
of a central part of the flywheel assembly shown in Fig. 3.--

Page 3, column 3, line 47, through page 4, column 4,
line 27, please amend as follows:

-- Now, a [crankshaft] flywheel assembly for an
internal combustion engine according to preferred
embodiments of the present invention will be described
hereinbelow with reference to FIGS. 1 to 4.

FIG. 1 shows a first preferred embodiment of the
present invention. [An] A driving shaft in the form of
an engine crankshaft 1 is connected to pistons through
respective connecting rods in a known manner for
receiving the driving power therefrom. An elastic
[plate] member 2 of this example is substantially of a
disc shape, and is fixed, at its inner portion 2f, to
one shaft end of the crankshaft 1 by a plurality of
bolts 3. As shown in Fig. 1, the elastic member or
plate 2 substantially of a disc shape is in the form of
a circular plate. The elastic plate 2 [is formed at

Serial No.: 08/629,547
Art Unit: 3502

Sub
Spec

its] has an outer peripheral [edge] portion 2b which is formed with an axially extending [section] flange 2a to which a ring gear R is fixed. The ring gear R engages with pinion gears of an engine starter motor for transmitting the driving power from the engine starter motor to the crankshaft 1 when starting the engine.
The inner portion 2f of the elastic plate 2 is surrounded by the outer portion 2b of the elastic plate 2.

An annular reinforcing member 4 is disposed between the elastic plate 2 and heads of the bolts 3. The reinforcing member 4 is formed at its outer peripheral edge portion with a received portion 4a which is in this example cylindrical [section 4a] and [extending] extends in an axial direction of the crankshaft 1. [and with] The reinforcing member 4 of this example further has a radially outwardly extending [section] flange 4b in the form of an outward flange, as shown in Fig. 1. The inner portion 2f of the elastic plate 2 is clamped between the reinforcing member 4 and the shaft end of the crankshaft 1.

A flywheel body 5 of an annular shape is fixed to the elastic plate 2 at their respective outer

Serial No.: 08/629,547
Art Unit: 3502

Sub
Spec

peripheral [edge] portions 5a and 2b through a plurality of bolts 6 and corresponding reinforcing ring members 7 disposed between the elastic plate 2 and heads of the bolts 6. The annular flywheel body 5 has an inner portion 5h [a stepped inner peripheral edge surface] defining a central mounting [opening] hole 5b for receiving the cylindrical received portion 4a of the reinforcing member 4 therein. The [stepped] inner peripheral [edge] surface of the flywheel body 5 is stepped and has a first surface section 5c extending axially, a second surface section 5d extending radially outward from the first surface section 5c and a third surface section 5e extending axially from the second surface section 5d. Each of the first and third surface sections 5c and 5e faces radially inwardly, and the second surface section 5d faces axially away from the elastic plate 2. The [axial section] axially extending, cylindrical received portion 4a of the reinforcing member 4 is in a slidable contact with the first surface section 5c of the flywheel body 5, and the radial [section] outward flange 4b of the reinforcing member 4 is spaced from the second surface section 5d of the flywheel body 5 by a predetermined

Serial No.: 08/629,547
Art Unit: 3502

[distance] clearance 10 for allowing an axial movement of the flywheel body 5 along with the elastic plate 2. A radially extending [inner] first side surface 5f of the flywheel body 5 facing the elastic plate 2 is spaced apart from the elastic plate 2 by a predetermined [distance] clearance 11 for ensuring an elasticity of the elastic plate 2.

Sub Spec

In the example shown in Fig. 1, the side surface 5h of the flywheel body 5 has an outer side surface section 5j and an inner side surface section 5k surrounded by the outer side surface section 5j. The outer side surface section 5j faces toward the elastic plate 2 and is fastened to the outer portion 2b of the elastic plate 2. The inner side surface section 5k also faces toward the elastic plate 2. The inner side surface section 5k is raised from the outer side surface section 5j toward the elastic plate 2.

The flywheel body 5 further includes a radially extending side surface 5g at a side axially opposite to the radial surface 5f or the elastic plate 2. The [radial] radially extending side surface 5g is an engaging surface which is engageable with a clutch facing 8 of a clutch disc 9 of a clutch in a known

Serial No.: 08/629,547
Art Unit: 3502

manner so as to control the transmission of the power
between the crankshaft 1 and a transmission. --

Page 5, column 5, line 2, change "fur" into --for
[fur]--.

Page 6, column 6, line 29, change "crankshaft" into
--flywheel [crankshaft]--;

lines 54, 60 and 62, between "radial" and "surface
5g", insert --engaging--.

Page 7, column 7, line 2, before "Then", insert:
-- Thus, the crankshaft 1, elastic plate 2, flywheel
body 5 and reinforcing member 4 are assembled into a
unit 15. --;

lines 2, 8, 12, 19, 30 and 31, between "radial"
and "surface 5g", insert --engaging--;

between lines 39 and 40, insert the following:
-- Fig. 5 shows the central part of the flywheel
assembly shown in Fig. 3 in more detail.

As in the first embodiment, the annular
reinforcing member 4 of the second embodiment extends
axially from a first member end 4h to a second member

Serial No.: 08/629,547
Art Unit: 3502

Sub
Spec

end 4i, as shown in Fig. 5. The axial length of the reinforcing member 4 is the distance D1 between the first and second member ends 4h and 4i. The reinforcing member 4 has an inner portion 4f having an abutment surface which defines the first member end 4h of the reinforcing member 4. The abutment surface 4h of the reinforcing member 4 is in contact with the inner end portion 2d of the elastic plate 2. The inner end portion 2d of the elastic plate 2 has first and second side surfaces which extend radially in parallel to each other. The first side surface of the inner end portion 2d of the elastic plate 2 faces leftward as viewed in Fig. 5, and the second side surface faces rightward. The abutment surface of the reinforcing member 4 faces leftward as viewed in Fig. 5. The leftward facing abutment surface of the reinforcing member 4 is in contact with the rightward facing second side surface of the inner end portion 2d of the elastic plate 2. The leftward facing first side surface of the inner portion 2d of the elastic plate 2 is in contact with the end surface of the crankshaft 1. The first and second side surfaces of the inner portion 2d of the elastic plate 2 extend in a radial direction which is

Serial No.: 08/629,547
Art Unit: 3502

perpendicular to the axial direction of the crankshaft
1. The first and second side surfaces of the inner end
portion 2d of the elastic plate 2 are clamped between
the abutment surface of the reinforcing member 4 and
the end surface of the crankshaft 1, as shown in Fig.
5.

The reinforcing member 4 has the received portion
4a received in the central hole 5b of the flywheel body
5. The received portion 4a of the reinforcing member 4
is cylindrical, and in sliding contact with the first
surface section 5c of the flywheel body 5 as in the
first embodiment. That is, the cylindrical received
portion 4a of the reinforcing member 4 has an outside
cylindrical surface facing radially outwardly, the
first surface section 5c of the flywheel body 5 is an
inwardly facing inside cylindrical surface defining the
circular center hole 5b, and the cylindrical received
portion 4a of the reinforcing member 4 is fit in the
center hole 5b of the flywheel body 5 with a radial
clearance 12 to form a loose fit. The radial clearance
12 is shown somewhat exaggeratingly in Fig. 5. Each of
the elastic plate 2, the reinforcing member 4 and the
flywheel body 5 is a rotating member rotating about a

Sub
Spec

Serial No.: 08/629,547
Art Unit: 3502

Sub
spec

center axis C-C shown in Fig. 3, and in the form of a solid of revolution (or solid of rotation) about the center line C-C as shown in Fig. 3. The reinforcing member 4 has an outer circumferential surface which is a surface of revolution generated by rotating a curved line (4j, 4k) about the center line C-C. The outer circumferential surface extends from the abutment surface 4h of the reinforcing member 4 toward the second member end 4i. In this embodiment, the outer circumferential surface of the reinforcing member 4 has an outer cylindrical surface section 4j fit in the central hole 5b of the flywheel body 5, and an outer curved surface section 4k which extends continuously from the outer cylindrical surface section 4j to the abutment surface 4h as shown in Figs. 3 and 5. Between the outward flange 4b and the abutment surface 4h, the outer circumferential surface (4j, 4k) is continuous such that the outer circumferential surface has no abrupt projection and no abrupt depression. The curved surface section 4k is a surface of revolution whose diameter decreases continuously from the diameter of the cylindrical surface section 4i toward the abutment surface 4h, as shown in Figs. 3 and 5. The curved

Serial No.: 08/629,547
Art Unit: 3502

surface section 4k extends from the abutment surface 4h to a curved surface end 4n at which the diameter becomes equal to the diameter of the cylindrical surface section 4j. The curved surface end 4n is located axially between the side surface 5f of the flywheel body 5 and the engaging surface 5g of the flywheel body 5.

Sub
spec

The engaging surface 5g of the flywheel body 5 is a rotating surface lying in an imaginary flat plane P-P shown in Fig. 3. The second member end 4i of the reinforcing member 4 is located axially between the engaging surface 5g and the first side surface 5f of the flywheel body 5. The second member end 4i is spaced away from the imaginary flat plane P-P toward the elastic plate 2. The axial distance D1 of the second member end 4i from the abutment surface 4h of the reinforcing member 4 is smaller than the axial distance D2 of the engaging surface 5g of the flywheel body 5 from the abutment surface 4h of the reinforcing member 4, as shown in Fig. 5.

As shown in Fig. 5, the outward flange 4b of the reinforcing member 4 has an abutting surface 4m confronting the second surface section 5d of the